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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference KAPRO PCT-05	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/L 03/01123	International filing date (day/month/year) 31.12.2003	Priority date (day/month/year) 31.12.2003
International Patent Classification (IPC) or both national classification and IPC G01C9/26, G01C9/28		
Applicant KAPRO INDUSTRIES LTD		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 20.02.2005	Date of completion of this report 30.06.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Passier, M Telephone No. +31 70 340-4872



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL 03/01123

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-5 as originally filed

Claims, Numbers

1-21 received on 15.06.2005 with letter of 15.06.2005

Drawings, Sheets

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL 03/01123

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)
6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:
 - the entire international application,
 - claims Nos. 10,21
because:
 - the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
 - the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 10,21 are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet
 - the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
 - no international search report has been established for the said claims Nos.
2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:
 - the written form has not been furnished or does not comply with the Standard.
 - the computer readable form has not been furnished or does not comply with the Standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:
 - restricted the claims.
 - paid additional fees.
 - paid additional fees under protest.
 - neither restricted nor paid additional fees.
2. This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IL 03/01123

complied with.
 not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

all parts.
 the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-9,11-20
	No: Claims	
Inventive step (IS)	Yes: Claims	1-9,11-20
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-9,11-20
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL 03/01123

Re Item III

Claims 10 and 21 contain references to the description and the drawings. According to R.6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here. Therefore, no opinion can be formed in the sense of A.33(1) PCT for **claims 10 and 21**.

Re Item IV

1. The application does not meet the requirement of R.13.1 PCT, as it lacks unity for the following reasons:
 2. The common concept linking together the independent **claims 1 and 11** is a pocket level with a horizontal bubble vial and a generally prismatic body with a front surface, a rear surface and a quadrilateral surround having a leveling surface. This common concept is not inventive (see e.g. GB-2210167) and is thus not providing unity of invention as required by R.13.1 PCT.
 3. The following inventions are recognised:
invention I: claims 1-6, 10 and 14-20;
invention II: claims 7-9, 11-13 and 21.
 4. In addition to the common concept, the claims of **invention I** define a line level which is detachable from the body in order to reduce costs and increase packaging convenience
 5. In addition to the common concept, the claims of **invention II** define a wheel rotatably supported by the body in order to accurately and easily measure inclination angles.
 6. The additional features differ from each other to such an extent that they are not considered as same or corresponding special technical features in the sense of R.13.2 PCT. Consequently, a technical relationship involving one or more of the same or corresponding special technical features is absent so that the requisite unity of invention (R.13.1 PCT) does not exist.

Re Item V

1. Prior Art

The following documents are referred to:

D1: GB-A-2210167

D2: GB-A-2 348 953

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL 03/01123

D3: US-A-5 103 569

D4: DE 32 05 206 A

2. Technical Field

The invention relates to spirit levels in general and pocket levels in particular.

3. Novelty and Inventive Step (Article 33(1),(2),(3) PCT)

1. The subject-matter of **claims 1-9 and 11-20** is novel and inventive for the following reasons:
 2. With respect to **invention I** document **D1** is considered to represent the closest state of the art. **D1** discloses a pocket level comprising a detachable line level with a horizontal bubble vial. The detachable line level is held in place in a recess in the main body by means of magnetic strips. Apart from the detachable line level, the pocket level of **D1** contains fixed horizontal and vertical bubble vials.
 3. The subject-matter of **claim 1** differs from **D1** essentially in that the detachable line level is provided with a longitudinally extending groove in its bottom surface and that the recess has a longitudinally extending rib for snug insertion into said groove. In the configuration with the line level being attached to the main body this provides a rigid connection between the line level and the main body. Such a solid connection cannot be achieved by the magnetic strips of **D1** which, in the attached configuration, cannot completely prevent relative motion between the detachable line level and the main body. Thus, the detachable line level of **claim 1** has an exact and steady connection to the main body in such a manner that the line level's horizontal bubble vial doubles as the pocket level's horizontal bubble vial. This eliminates the need for an additional fixed horizontal bubble vial (as in **D1**).
 4. Neither **D2** nor **D4** disclose or suggest such a rib-groove connection between a detachable line level and the main body. **D3** discloses a rib-groove connection, but this is a vertical connection between a detachable vertical vial (not a line vial) and the main body, so that the skilled person would not be prompted by **D3** to replace the horizontal magnetic strips of the line vial **D1** with a rib-groove connection.
 5. With respect to **invention II** document **D2** is considered to represent the closest state of the art. **D2** discloses a pocket level comprising an open triangular body with a rotatably supported wheel rim surface with a bubble vial extending diametrically thereacross inside the body opening.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL 03/01123

6. The subject-matter of **claim 11** differs from **D2** essentially in that the body has a quadrilateral surround having a throughgoing cutout enabling access to the wheel rim surface. This enables easier access to the rotatable bubble vial so that more accurate measurements can be obtained.
7. Neither **D1** nor **D3** disclose or suggest such an access to a wheel rim of a rotatable bubble vial. **D4** discloses wheel rim surfaces located in cutouts in a quadrilateral surround, but these wheel rim surfaces do not belong to rotatable bubble vials, so that the skilled person would not be prompted by **D4** to modify the device of **D2** into something defined by **claim 1**.
8. **Claims 2-9 and 12-20** are dependent on **claims 1 and 11**, respectively, and as such also meet the requirements of the PCT with respect to novelty and inventive step.

4. Industrial Applicability (Article 33(1),(4) PCT)

The invention as claimed in **claims 1-9 and 11-20** is industrially applicable.

Other

1. **Claims 1 and 11** are unclear (A.6 PCT), because the expression "for indicating the inclination of a horizontally disposed surface with respect to the horizontal" is not understandable. It appears that such an inclination by definition always equals zero. It is thus unclear, from the wording of the claims, what the horizontal bubble vial intends to indicate. Similarly, it is unclear what is meant with "a leveling surface for placing on the horizontally disposed surface". Should it not be placed on an inclined surface?
2. The features of the claims are not provided with reference signs placed in parentheses (R.6.2(b) PCT).
3. The relevant background art disclosed in the document **D2** is not mentioned in the description, nor is this document identified therein (R.5.1(a)(ii) PCT).

- 6 -

Claims:

1. A pocket level having a horizontal bubble vial for indicating the inclination of a horizontally disposed surface with respect to the horizontal, the 5 pocket level comprising:
 - (a) a detachable line level having a horizontal bubble vial for indicating the inclination of a horizontally disposed line with respect to the horizontal, and a bottom surface with a longitudinally extending groove; and
 - (b) a generally prismatic body with front and rear surfaces and a generally 10 quadrilateral surround including a leveling surface for placing on the horizontally disposed surface and an upper surface opposite said leveling surface, and a recess with a longitudinally extending rib for snug insertion into said groove on assembly of said line level in said recess such that said line level's horizontal bubble vial doubles as the pocket level's horizontal bubble vial.
- 15 2. The level according to claim 1 wherein said body includes a substantially centrally disposed throughgoing recess for assembly of said line level therein.
3. The level according to claim 2 wherein said body includes an inverted 20 generally T-cross sectioned strut with an upwardly extending elongated member whose upper portion constitutes said longitudinally extending rib.
4. The level according to any one of claims 1 to 3 wherein said upper surface has a throughgoing cutout for enabling said line level's horizontal bubble vial to 25 be viewed therefrom when said line level is assembled therein.
5. The level according to any one of claims 1 to 4 wherein said line level has a housing with a pair of upward facing cutouts at opposite ends and said recess has a pair of side walls each having a U-shaped retaining member with a

- 7 -

resiliently flexible free end for snap fitting into a cutout when said line level is assembled in said recess.

6. The level according to any one of claims 1 to 4 wherein a magnetic 5 arrangement retains said line level in said recess,

7. The level according to any one of claims 1 to 6 and further comprising an angle finder having a wheel rim with a bubble vial diametrically extending thereacross and an external non-slip circumferential wheel rim surface, said 10 quadrilateral surround having a throughgoing cutout for enabling access to a minor arc portion of said wheel rim surface thereby enabling user direct rotation of said wheel rim while said leveling surface is placed on an inclined surface for enabling determination of the angle of the inclined surface.

15 8. The level according to claim 7 wherein said upper surface is formed with said throughgoing cutout for enabling access to a minor arc portion of said wheel rim surface thereby enabling user direct rotation of said wheel rim.

9. The level according to either claim 7 or 8 wherein said body includes a 20 pair of opposite and spaced apart raceways for rotatably supporting said wheel rim and said wheel rim includes at least one resiliently flexible member urged against one of said pair of raceways for frictionally impeding direct user rotation of said rotatable bubble vial.

25 10. A pocket level with a detachable line level substantially as described hereinabove and shown in the attached drawings.

- 8 -

11. A pocket level having a horizontal bubble vial for indicating the inclination of a horizontally disposed surface with respect to the horizontal, the pocket level comprising a generally prismatical body with front and rear surfaces, and a generally quadrilateral surround including a leveling surface for placing on the horizontally disposed surface and an upper surface opposite said leveling surface, said body rotatably supporting an angle finder having a wheel rim with a bubble vial diametrically extending thereacross and having an external non-slip circumferential wheel rim surface, and said quadrilateral surround having a throughgoing cutout for enabling access to a minor arc portion of said wheel rim surface thereby enabling user direct rotation of said wheel rim while said leveling surface is placed on an inclined surface for enabling determination of the angle of the inclined surface.

12. The level according to claim 11 wherein said upper surface is formed with said throughgoing cutout for enabling access to a minor arc portion of said wheel rim surface thereby enabling user direct rotation of said wheel rim.

13. The level according to either claim 11 or 12 wherein said body includes a pair of opposite and spaced apart raceways for rotatably supporting said wheel rim, and said wheel rim includes at least one resiliently flexible member urged against one of said pair of raceways for frictionally impeding direct user rotation of said rotatable bubble vial.

14. The level according to any one of claims 11 to 13 wherein said body has a recess for assembly of a detachable line level having a horizontal bubble vial for indicating the inclination of a horizontally disposed line with respect to the horizontal therein such that said line level's horizontal bubble vial doubles as the pocket level's horizontal bubble vial.

- 9 -

15. The level according to claim 14 wherein said body includes a substantially centrally disposed throughgoing recess for assembly of said line level therein.
- 5 16. The level according to either claim 14 or 15 wherein said line level has a bottom surface formed with a groove extending longitudinally therealong and said recess has a longitudinally extending rib for snug insertion into said groove on assembly of said line level therein.
- 10 17. The level according to any one of claims 14 to 16 wherein said body includes an inverted generally T-cross sectioned strut with an upwardly extending elongated member whose upper portion constitutes said longitudinally extending rib.
- 15 18. The level according to any one of claims 14 to 17 wherein said upper surface has a throughgoing cutout for enabling said line level's horizontal bubble vial to be viewed therefrom when said line level is assembled therein.
- 20 19. The level according to any one of claims 14 to 18 wherein said line level has a housing with a pair of upward facing cutouts at opposite ends and said recess has a pair of side walls each having a U-shaped retaining member with a resiliently flexible free end for snap fitting into a cutout when said line level is assembled in said recess.
- 25 20. The level according to any one of claims 14 to 18 wherein a magnet arrangement retains said line level in said recess.
21. A pocket level with an angle finder substantially as described hereinabove and shown in the attached drawings.